

Listing of Claims

The claims have not been amended herein. The following list of claims is provided for the Examiner's convenient reference.

1. (Previously Presented) Use of a non-natural presentation system in quantifying an amount of a target moiety which is present in a sample, the presentation system comprising at least one copy of a target moiety or part thereof that is recognizable by a binding partner and at least one domain of a scaffold material covalently linked to said target moiety wherein the scaffold material has a controllable property, and wherein the at least one domain of the scaffold is non-reactive to a binding partner specific to said target moiety or part thereof.

2.-27. (Canceled)

28. (Previously Presented) A product for quantifying the amount of a target moiety which may be present in a sample, the product comprising a plurality of presentation systems, each presentation system comprising at least one copy of a target moiety or part thereof and at least one domain covalently linked to said copy of the target moiety, wherein the domain(s) is/ are non-reactive to a binding partner specific to said copy of the target moiety or part thereof, further wherein each presentation system has a different molecular weight from other presentation systems in the product.

29. (Canceled)

30. (Previously Presented) A kit for quantifying the amount of a target moiety in a sample, the kit comprising a presentation system of claim 57.

31. (Previously Presented) A method of quantifying the amount of target moiety in a sample, the method comprising:

a) providing a presentation system comprising at least one copy of the target moiety or part thereof that is recognizable by a binding partner and at least one domain which is non-reactive to said binding partner, said at least one copy of the target moiety being covalently bonded to the at least one domain of a scaffold material that has a controllable property;

- b) carrying out a separation detection technique on said presentation system, wherein said presentation system is present in a specific amount;
- c) generating at least one comparison point comprising an intensity of a signal produced by the presentation system versus the amount of the presentation system.

32. (Previously Presented) The method according to claim 31 wherein the presentation system is present in a single specific amount.

33. (Previously Presented) The method according to claim 31 wherein the presentation system is present in a series of varying amounts.

34. (Previously Presented) The method according to claim 33 wherein the varying amounts are in the same or different lanes or channels of a blot.

35. (Previously Presented) The method according to claim 33, wherein the comparison point is a plurality of comparison points which together provide a calibration curve.

36. (Previously Presented) The method according to claim 31 further comprising comparing the comparison point or comparison points with the sample to quantify the amount of target moiety present in the sample.

37. (Previously Presented) The method according to claim 31, wherein said presentation system is of a known molecular weight or pI.

38. (Previously Presented) The method according to claim 31, wherein the presentation system comprises a non-biological polymer, a nucleic acid molecule, a peptide, protein or combinations thereof.

39. (Previously Presented) The method according to claim 31, wherein the presentation system comprises a plurality of domains linked in tandem.

40. (Previously Presented) The method according to claim 31, wherein the presentation system comprises identical units or domains or non-identical or different units or domains.

41. (Previously Presented) The method according to claim 31, wherein the unit(s) of the presentation system is/are non-reactive to the binding partner specific to the target moiety of part thereof.

42. (Previously Presented) The method according to claim 31, wherein the copy of the target moiety or part thereof comprises sequences of DNA, RNA, protein or peptide, saccharides, haptens, phosphate, nitrosylated groups, sulphated groups, GPI groups, an epitope, an antigenic structure or a chemical entity.

43. (Previously Presented) The method according to claim 42, wherein the copy of the target moiety comprises SERCA2a or SERCA2a phosphorylated on serine-38.

44. (Previously Presented) The method according to claim 31, wherein the presentation system comprises differing target moieties or parts thereof.

45. (Previously Presented) The method according to claim 31, wherein the copy of the target moiety or part thereof is linear or branched within the presentation system.

46. (Previously Presented) The method according to claim 31, wherein the specific binding partner comprises a molecule which has a specific binding affinity for the target moiety and is capable of binding thereto.

47. (Previously Presented) The method according to claim 46, wherein the binding partner comprises an antibody, DNA sequence, RNA sequence, a polypeptide, a dye, a metal chelate or a drug molecule.

48. (Previously Presented) The method according to claim 31, wherein the separation based detection technique comprises a dot blot, Western blot, RIA, fluorescence polarization, ELISA, Northern blotting, Southern blotting, PCR, High Performance Liquid Chromatography (HPLC), capillary electrophoresis, 1D electrophoresis, isoelectric focusing, mass spectrometry or combinations of the above.

49. (Previously Presented) The method according to claim 31, wherein the presentation system is a positive control for detecting the presence or absence of a target moiety in a sample.

50. (Previously Presented) The method according to claim 31, wherein the presentation system is an internal standard by providing a one point calibration.

51. (Previously Presented) The method according to claim 31, wherein the presentation system is used to generate multiple comparison points so as to provide a calibration curve.

52. (Previously Presented) The method according to claim 31, wherein the presentation system is used to monitor efficiency of immunoprecipitation and/or stages of an immunoprecipitation process.

53. (Canceled)

54. (Previously Presented) A method for quantifying an amount of a protein epitope in a sample, said method comprising:

- (a) providing a protein presentation system comprising at least one copy of the protein epitope and at least one further protein domain, wherein said presentation system is of known molecular weight;
- b) carrying out a Western blot experiment on said presentation system, wherein said presentation system is in a specific concentration; wherein said Western blot experiment utilizes a binding partner specific to the target moiety; and further wherein said protein domain of the presentation system is non-reactive to the binding partner; and
- c) generating a comparison point comprising an intensity of a signal produced by the presentation system in said technique compared to the concentration of the presentation system.

55. (Canceled)

56. (Previously Presented) A product comprising at least one copy of a target moiety or part thereof that is recognizable by a binding partner and at least one domain of a scaffold material covalently linked to said target moiety wherein the scaffold material has a controllable property, and wherein the at least one domain of the scaffold is non-reactive to a binding partner specific to said target moiety or part thereof, the target moiety being selected from the group comprising A1, PS-38 or PT17 peptides and the scaffold material being

selected from the group comprising: an I27 domain from titin; I39 domain which is a subunit (subunit 5) of splicing factor 3b; organ of Corti protein (Mus musculus); heat shock protein, mitochondrial (Mus musculus); splicing factor 3B subunit 5 (Mus musculus); ubiquinol-cytochrome C reductase complex ubiquinone-binding protein; E1B protein (Human adenovirus type 11); chaperonin (Arabidopsis thaliana); photosystem II reaction center H protein (Arabidopsis thaliana); a NADH-ubiquinone oxidoreductase subunit, mitochondrial [Precursor] (Homo sapiens); signal recognition particle protein (Mus musculus); and DNA polymerase delta subunit 4 (Mus musculus).

57. (Previously Presented) A non-natural presentation system, comprising at least one copy of a target moiety or part thereof that is recognizable by a binding partner and at least one domain of a scaffold material covalently linked to said target moiety wherein the scaffold material has a controllable property, and wherein the at least one domain of the scaffold is non-reactive to a binding partner specific to said target moiety or part thereof.